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ABSTRACT

A study investigated what pregnant women and mothers of infants do to develop language and promote a love of reading in their children during the early stages of life. Two surveys were used, the first completed by 15 pregnant women, and the second completed by 15 women with infant children. Results indicated that: (1) the majority of pregnant women in the study talked to their unborn child but did not read to the unborn child; and (2) the majority of mothers with infant children talked as well as read to their child everyday. (Two tables of data are included, a review of related literature on this subject, and 35 references are attached.) (Author/SR)

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# READING AND LANGUAGE DEVELOPMENT AT THE PRENATAL AND INFANCY STAGE OF LIFE

by

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Submitted in Partial Fulfillment of the requirements of the Masters of Arts Degree in Reading Specialization

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## ABSTRACT

The purpose of this study was to determine what pregnant women and mothers of infants do to develop language and promote a love of reading in their child during the early stages of life. Two surveys were used in this study. The first survey was answered by 15 pregnant women. The second survey was completed by 15 women with infant children. After analyzing the answers the study concluded that the majority of pregnant women do talk to their unborn child but do not read to the unborn child. In contrast, the majority of mothers with infant children did talk as well as read to their child everyday.

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Many children are growing up without a positive attitude towards reading. This is primarily due to the fact that parents are unaware of their role as a model in their child's reading and language development. In homes where reading is not encouraged, the child will enter school without the necessary tools needed for successful learning. Therefore, in order to instill a desire for books in our children, parents must begin reading to their child at birth, or perhaps even before birth while the baby is still in the womb, the assumption being that language input can have an effect on the developing fetus.

Strickland and Morrow (1989) believe that parents are the first teachers children meet and they remain the most important teachers for a long time. Jim Trelease (1982) states that it is time for every educated adult to sell one product in the home before all others and that product is Reading. He also believes that parents can enhance their child's academics development by reading aloud to the child everyday. Peltzman (1984) feels that parents should read to their children early and often. She believes parents should start reading to their child during the infancy stage of life. The research of Amy Wahl (1988) states that parents should be aware that children are ready for informal learning experiences at birth, the environment must be set for learning to take place, and their role is an active one in early reading.

Karen Levine (1989) found that babies enter this world already equipped with social and cognitive skills. She also found that these infants learn from their environment as early as the first hours of life.

Parents have a tremendous influence on their child's interest in reading, language development, and academic achievement. However, many parents find this out too late and do not get involved in their child's education until the child has started school. Parents must be informed that children are ready for learning at birth. There is even some evidence that parents can give their child a head start by trying to teach them before they are born. To ensure successful learning experiences later in life, mothers and fathers must be encouraged to take a more active role in the early education of their children. The question remains, however, to what extent are parents, especially mothers, aware of the need to develop language facility, and reading specifically.

## HYPOTHESIS

Mothers of infants and pregnant women are not exposing their children to language and reading during the early stages of life.

## DEFINITIONS

Infant - refers to the first 12 months of life after birth.

Newborn - refers to the first 4 weeks of life after birth.

Speech - the ability to utter sounds

Babbling - incoherent sounds made by playing with sounds.

## ASSUMPTIONS

There were three assumptions in this study. First, it was assumed that all women who participated in this study answered the survey honestly. Secondly, it was assumed that normal intelligence and normal genetic factors were deemed present during the prenatal and infancy stage. Thirdly, it was assumed that the children involved did not have impaired auditory perceptual abilities.

## LIMITATIONS

There were three limitations to this study. The population sample was comprised of fifteen pregnant women and fifteen mothers of infant children, possibly limiting the results. Secondly, social and economic factors were not fully taken into consideration. Thirdly, due to the lack of knowledge regarding the prenatal stage of development, the pregnant women involved in this study many not have been aware of the possibility that the fetus has the ability to learn within the womb.

## PROCEDURES

A study was conducted to determine what pregnant women and mothers of infant children do to promote a love of

reading in their child to ensure appropriate language development. Two surveys were used in this study. The first survey was answered by fifteen pregnant women in a Lamaze class at Overlook Hospital. The second survey was completed by fifteen women with infant children. Answers from the surveys were analyzed for pertinent information regarding the reading and language input to unborn children and infants.

## RESULTS

As can be seen in Table I, all of the mothers felt

TABLE I

OBTAINED FREQUENCY OF RESPONSES TO QUESTIONS POSED IN SURVEY FOR PREGNANT WOMEN

| QUESTIONS | YES | NO |
|---|---|---|
| Do you think it is important for a child to be read to? | 100% | 0% |
| Do you read aloud to your unborn child? | 20% | 80% |
| Do you talk to your unborn child? | 100% | 0% |
| Are you aware that there is some evidence that suggests as early as the sixth or seventh month in the womb a child is capable of discerning tone of voice? | 87% | 13% |

| QUESTIONS | YES | NO |
|---|---|---|
| Do you find reading enjoyable? | | |
| Mother | 100% | 0% |
| Father | 93% | 7% |
| Is time set aside daily for your own personal reading? | 87% | 13% |
| Do you have a professional occupation? | | |
| Mother | 47% | 53% |
| Father | 53% | 47% |

that a child should be read to in order to develop oral language, increase communication skills, strengthen the bonding process, and to teach the child that reading is enjoyable. However, the majority of the pregnant women did not feel it was necessary to read to a child that is still in the womb. Many of these women reported that they would begin to read to their child at birth to three months of age. The mothers that were motivated to read to their child in utero read between 2-5 times a week. These women personally found reading enjoyable, made time each day to read for pleasure, and had occupations that were considered professional. Their spouses also had professional careers and found reading pleasurable as well.

By the data compiled from my survey, however, all the pregnant women reported that they talked to the unborn child. When asked what other means of communication were used, the most popular responses were to touch, sing, and play soft music to the fetus.

As indicated in the previous tabular report, once

TABLE II

OBTAINED FREQUENCY OF RESPONSES TO QUESTIONS POSED IN SURVEY FOR MOTHERS OF INFANT CHILDREN

(Age = Birth - 12 Months)

| QUESTIONS | YES | NO |
|---|---|---|
| Do you think it is important for a child to be read to? | 100% | 0% |
| Do you read aloud to your child now? | 80% | 20% |
| Do you talk to your infant child? | 100% | 0% |
| Do you find reading enjoyable? | | |
| Mother | 100% | 0% |
| Father | 100% | 0% |
| Is time set aside daily for your own personal reading? | 73% | 27% |
| Do you have a professional occupation? | | |
| Mother | 20% | 80% |
| Father | 47% | 53% |

again, in Table II, all the mothers felt it was important for a child to be read to because it is a form of communication and education. The majority of the mothers did find time to read to their infant child daily. The books they chose to use were mostly children's books such as Mother Goose Nursery Rhymes, Dr. Seuss, counting books, and brightly colored picture books. All the parents of these children found reading to be personally rewarding and found time to read daily. The majority of these mothers and fathers had occupations which are considered non-professional.

There were some mothers who participated in the survey who felt that reading aloud to children should not start until the age of one year. However, these parents also found reading to be enjoyable and mostly had occupations which were considered non-professional.

All mothers reported that they did talk to their infant child. When asked what other means of communication were used the most popular responses were to sing, touch, play games, bathe, and read books.

## CONCLUSIONS AND IMPLICATIONS

The conclusion that can be drawn from this study is that the majority of pregnant women do not read to their unborn child even though they believe it is important for a child to be read to. This is probably due to the lack of information regarding prenatal reading and learning.

However, the few pregnant women that felt learning can be transmitted to the fetus had professional careers and they themselves found reading to be fulfilling.

In contrast, the majority of the mothers of infant children did read aloud to their child everyday. Many of these women, although, did not have professional backgrounds but they did consider reading to be enjoyable and felt it was necessary for a child to hear the printed word.

# READING AND LANGUAGE DEVELOPMENT AT THE PRENATAL AND INFANCY STAGE OF LIFE

## Related Literature

Most people believe that the womb is a warm and safe environment where the fetus develops in peace and is totally oblivious to the outside world. However, new evidence indicates that fetal life is quite different. Research suggests that babies still in the womb may be able to see, hear, taste, and feel emotions. Even though prenatal facts are only beginning to accumulate, much of the research indicates that learning begins before birth.

John Grossman (1985) reported on a study which used pregnant sheep. Researchers inserted a microphone into a pregnant ewe to see what could be heard, if anything, in the uterus. The researchers heard not only the mother sheep's baaing but their own voices as well. Therefore, this study seems to indicate that if the human womb receives external sounds as well as the uterus of a sheep, it is possible that a baby might know its mother's voice from having listened to it for weeks inside the womb.

Anthony DeCasper (1987) conducted a study on the learning capabilities of the fetus. He was mostly concerned with what a fetus hears and subsequently recognizes. In this study infants sucked on a nipple that activated a tape recorder. One pattern of sucking turned on a recording of the mother's voice; a different pattern activated a tape on another woman's voice. The findings indicated that the babies quickly learned to activate their mother's voice, and they also preferred it. These

findings also suggest that infants might be able to recognize something they had heard prenatally.

Lee Salk (1972) also speculated on the importance intra-uterine sounds might have after birth. He played the sound of an adult heartbeat for almost a week to over 100 infants in a New York nursery. Salk then compared them with another group of infants who were not exposed to the taped heartbeat. He found that most of the infants who had heard the heartbeat cried less and gained more weight, even though they ate the same amount of food. These results suggest that prenatal experiences play an important role in postnatal life.

Rene Van de Carr (1979) founded his Prenatal University on the idea that we can build better babies if we start before they are born. He claims that fetuses not only can hear what's going on intra utero, but they can also be taught to understand it. The curriculum calls on Mothers-to-be and Dads to repeat simple verbs like "pat" and "rub" while they are performing the appropriate action simultaneously. As the pregnancy progresses new words are taught. The point of this program is to introduce the baby to the idea of constancy, so that it will later associate certain sensations with certain sounds. Van de Carr also believes playing classical music is beneficial. He claims that the fetuses who hear a work in the womb remember it.

Susan Ludington-Hoe and Susan K. Golant also reported on a study which proved that the fetus not only hears music but responds to it as well. Mothers in the last six weeks of pregnancy were asked to play their favorite classical music for ten minutes a day at levels just a bit louder than normal speech. The researchers found that the unborn babies reacted excitedly to the musical tone because their heart rates rose a full 15 beats per minute.

Gilbert Gottlieb (1985) believes the ears of a human fetus are functional at about the sixth month of gestation. He believes this in utero ability may play a role in postnatal development. Gottlieb conducted a study using mallard ducklings. He has found that the ability of a duckling to identify its species after hatching, is closely tied to the animal's behavior a few days prior to hatching. That behavior, a peeping sound of the mother duck, helps the duckling to recognize, at birth, its mother's call. In analyzing the study, Gottlieb felt that since prenatal auditory experience is important in the development of the mallard duckling's attachment to its mother's call, and since the human fetus is capable of hearing before birth, one begins to wonder about the importance of prenatal hearing in humans as well as the potential significant for early maternal attachment.

Thomas Verny (1981) feels that the fetus begins to learn speech in utero. He states that everyone has their own distinctive speech patterns and the origins of these differences come from our mothers. He believes that we begin to learn our speech by listening to our mother while in the womb. Verny stresses the importance of talking to the unborn child, stating that it really does hear and that soft, soothing talk makes it feel loved and wanted. This prenatal communications also provides the unborn child with the emotional and intellectual stimulation that is urgently needed during this stage of development.

The research of Melvin Zax (1977) describes the devastating effects of emotional neglect in utero. He studied pregnant schizophrenic and psychotic women and what effect mental diseases have on unborn children. The results indicated that such diseases made meaningful communication with the children impossible. The silence and chaos often left deep scars on the youngsters. Also, these infants, at birth, tend to have more physical and emotional problems than the infants of mentally healthy women.

In this book, The Secret Life of the Unborn Child (1981), Dr. Verny reported on a case study by Dr. Alfred Tomatis. Dr. Tomatis treated an autistic child named Odile several years ago. When sessions began with this child she could not speak and it appeared that she could not hear when spoken to. After a month of treatment,

however, Odile began listening and speaking. Her parents, whose main language was French, were pleased with the progress. However, at the same time, they were a bit baffled by it because Odile's comprehension improved considerably whenever they spoke English instead of French. The parents could not understand where the child picked up her knowledge of the English language because neither of them spoke English at home. Until she came under Dr. Tomatis's care, Odile was almost totally unaware of the English language. Dr. Tomatis was also perplexed by this. Then one day Odile's mother mentioned that during most of her pregnancy she had worked in a Paris import/export firm where only English was spoken. Perhaps this indicates that auditory preferences after birth are influenced by what is heard prenatally.

Jim Trelease (1985) feels that if children are old enough to talk to, they are old enough to be read to. This includes unborn babies are well. During the prenatal stage, however, we are only concerned with conditioning the unborn child to the sound of the human voice. The human voice is a very powerful tool for calming a child. Trelease feels that if a child can be conditioned to expect calmness and security by a soothing tone of voice, the child can also be conditioned to the sound of the reading voice. During the prenatal stage the child will begin to recognize the sound as unthreatening and start to

associate it with warmth and attention, and eventually the child will move toward that sound naturally.

DeCasper and Spence (1988) conducted an experiment which provided the fetus with a unique auditory experience in order to determine what the fetus has learned. Two groups of pregnant women read two different stories daily to their unborn children. The stories were then taped recorded by both groups. After the babies were born, the recorders were hooked to a suck-o-meter. If a baby sucked twice it would get to hear the familiar story. All the infants learned to time their sucking so that they could hear the story they had heard in the womb. Therefore, it appears again that prenatal auditory experience is sufficient to influence postnatal auditory preferences.

In a very similar study, DeCasper (1987) asked women seven and a half months pregnant to read a story out loud three times daily for four weeks. At the end of four weeks, recordings of that story and a different one were played while DeCasper monitored the fetus's heart rate for signs of change. The results indicated that the familiar story caused a decrease in fetal heart rate, and the unfamiliar story caused a slight increase.

If the above studies are accurate, it can be concluded that the fetus learns. By supplementing the natural sensory stimulation to the fetus during the last trimester, expectant parents may enhance its growth and

development and give their infant a developmental head start in life.

Julius and Zelda Segal (1985) wrote an article in which they believe a new born baby enters this world already equipped with amazing talents, skills, and nine months of preparatory experience from being in the womb. At birth, a baby's brain has only a fourth of its eventual weight but its total machinery is in place. All the nerve cells that the child will ever have in life are there at birth. The newborn's senses, therefore, are already highly responsive to stimulation. According to the Segals, newborns can see, hear, taste, and understand a lot more than most people think.

In a study done by Johnson and Johnson (1983), high speed films of babies and mothers made during the first weeks of life show that as a mother talked to her baby, it often made gestures toward her with its hands. The baby even opened and closed its mouth as if it were trying to talk to her. Johnson and Johnson feel that parents can give their baby a chance to take an active part in early conversations by talking to the infant as though they were expecting a reply.

Amanda Sherwin (1987) states in an article that very young babies don't understand words but that doesn't mean it's silly to talk to them. Just as babies like to watch their parent's voice. Talking to a baby helps to

establish the basis for later language development as well as laying the foundation for good communication skills.

Edward Tronick (1989) has spent 20 years studying how babies talk. His research indicates that even babies sucking patterns mimic the give-and-take of conversations. A baby responds to a tone of voice, a look, or even a head movement. A baby also takes his turn by gesturing, cooing, or crying lustily. This response shows that the infant picks up on information. Tronick also feels that a baby's passivity and animation often mesh with the mother's own rhythm of conversation.

Meltzoff and Moore (1977) believe that an infant's intellect is at work long before any language is available as a tool. They conducted a study showing that babies only 12 days old could imitate an adult sticking out a tongue. If a pacifier was put into the baby's mouth in order to prevent instant action, they baby would remember what it wanted to do until the pacifier was removed, then it would stick out its tongue. Meltzoff and Moore believe that the ability to coordinate the perceptions of two different activities, such as vision and muscular action, is virtually the first form of thinking.

Cazden (1972) believes that imitation is one of the primary learning methods for children. They imitate what they hear and what they see. It is this ability to imitate that allows the 15 month old to say his first words.

Meltzoff (1977), in another study, tested the length of a baby's memory and the type of information retained. The study used nine month olds, using three different toys. The nine month olds were brought into a lab and were shown the three different actions on these toys. The babies, however, were not allowed to hold or touch the toys. Twenty four hours later the babies were brought back in and given a toy one at a time. Meltzoff found that about 20 percent of the babies were able to perform all three actions correctly a full day after observing the toys in action. The group of babies who had met the experimenter the day before but had not been shown the toys were not able to perform these actions on the toys. Meltzoff feels that imitation is one of the primary ways infants learn about their environment, develop social skills, as well as develop an understanding of their world.

Fox (1989) studied infants' smiles and accompanying brain-wave patterns as indications of social learning. Fox coded the expressions of ten month-olds when an unfamiliar adult faced them and then again when their mothers faced them. He found a very significant difference in the smiles they had for strangers and for their mothers. When the infants saw their mother's face, they gave a full smile. When a stranger faced the infants, they gave an unfelt smile like a cocktail smile.

Fox believes that by ten months babies have already learned how to use subtle social signals to communicate different kinds of emotional messages.

Not only are babies fascinated by facial expressions, but researchers have found they are also astute listeners. Kuhl and Meltzoff (1983) discovered that infants as young as four months old could solve a simple lip-reading problem by distinguishing between a face making the sound "ahh, ahh, ahh" and one making the sound "eee, eee, eee." Kuhl and Meltzoff showed the babies simultaneous films of faces making each sound, but played only a recording of one sound. The majority of the babies looked toward the picture that fit the sound. In addition, the researchers also taped the babies' sounds and found they sometimes verbally mimicked the sound they were hearing. The findings indicate that babies can detect the relationship between mouth movement and the sounds they hear. Therefore they have the ability to put both listening and visual skills together.

The purpose of a study conducted by Beatrice Beebe (1989) was to explore the dialogue between preferable babies and their mothers. The research showed startling similarities between the time patterns of mother-infant vocalization and pauses and the time patterns of adult conversation. It is evident that aspects of dialogue structure are present as early as four months of age.

Beebe feels that in order for babies to learn to take turns in conversation, they must be able to perceive time, rhythm, and duration of vocalization. This ability is what allows later language development to build.

The magazine, American Baby - The First Year of Life (1988), states that during the fifth month of life listening is becoming much more intense. The infant responds to more kinds of stimuli, but the human voice always merits the most attention. The baby can easily pick out their mother's voice from among those in a room-ful of people. The child enjoys listening to nursery rhymes because of rhythmic verses. If parents take the time to talk to their baby, telling the child the names of common items which it sees every day, by the sixth month of life the child will already have begun to build up a passive vocabulary. At the end of the sixth month, as the parent names an object, the child may respond by looking at one or two of the objects. According to the magazine this is a milestone in speech development.

Benedicte de Boysson-Bardies (1989) did a study of the sounds infants made at six, eight, and ten months of age. She wanted to know when baby babble began to sound different for infants of different cultures. Recordings of babbling babies from Paris, Tunis, and Hong Kong were played for a group consisting of both French phonetics experts and laymen. The group was then asked to identify

which babble belonged to the French babies. The phoneticians were able to identify the French babies among the six month olds. Both groups correctly identified the eight and ten month olds. The findings indicate that the aspects of babbling that are crucial to the mother's tongue such as melody, intonation in pitch, and intensity, are already in place by the time the child reaches six months of age.

Miller (1989) feels that infants learn words slowly during the first years of life. As the child enters the second year, acceleration begins. Babies as young as fifteen months begin to learn and remember six or seven new words a day simply by listening. However, the quality of handling and experience from birth to age three can have a profound effect on child development. Miller believes language is fragile, but if parents take the time to talk to their child it can be helped along.

Potter (1986) describes the home environment as having a strong impact on a child's development. This is where the first communication occurs and often where the first story is shared. A stimulating environment has a profound effect on the intellectual capacities of babies by influencing the brain's rate of growth. Parents of early readers not only read to their children at infancy, but they were responsive to their child's attempts to read and write as well.

According to Sandra Hinds (1985) any parent can prepare their child for the adventure of reading. She believes parents should start reading to their child before they can walk or talk. She recommends starting out with picture books which contain only one item per page and are illustrated in a few primary colors. The child's first adventure with words begin when a parent points to the pictures and tells the child the appropriate words. Babies also enjoy being cuddled. Mothers and fathers should cuddle their child during story time. By doing this, the parents help the child to associate books with comfort and entertainment.

Trelease (1985) feels that until a child is six months old, it doesn't matter what parents read to a child as long as they take the time to read aloud. At this stage of the child's life a parent should only be concerned with having the child become accustomed to the rhythmic sound of their reading voice. This will help the child associate it with a peaceful and secure time of day. Trelease also feels that a child's sight and hearing are attuned enough for him to recognize familiar faces, objects, and voices between six and ten months of age. Therefore, during the next year, the parents' book selections should be ones that stimulate those two senses. Parents should choose books with colorful pictures and exciting sounds such as Mother Goose. Mother Goose has

rhymes and songs which stimulate the infants language and listening skills. The picture books parents choose should be simple but boldly colored to arouse the child's curiosity and visual sense.

A child is at the height of its imitative powers during the infancy and early years of life. It is also during this time that much of the child's intense mental growth occurs. Therefore, an early introduction of rich vocabulary and the concept of books will help to feed the mind and stir the senses of a child who has a hungry appetite for words. Parents should become aware of the fact that no age is really too young to begin storybook reading. Babies younger than a year might not be able to understand much of what is being said to them, but they enjoy the sounds and the illustrations. Reading and storytelling teach enjoyment of words as well as how the world looks, works, and feels.

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